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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/705,434

11/10/2003

Timothy D. Seeley

24499-533

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7590

03/10/2006

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EXAMINER

ROSENBERGER, RICHARD A

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

11A

Office Action Summary	Application No.	Applicant(s)	
	10/705,434	SEELEY, TIMOTHY D.	
	Examiner	Art Unit	
	Richard A. Rosenberger	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-51 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/6/04; 5/19/04; 2/1/06</u> | 6) <input type="checkbox"/> Other: ____ |

1. Claims 1-19 are rejected under 35 U.S.C. 112, first and second paragraph, as not being adequately disclosed in the application as filed and as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 call for “illuminating each of the detectors with a plurality of electromagnetic beams ...”; there is no support for this use of a plurality of beams illuminating each of the detectors, and it is unclear what subject matter is being claimed here. The instant specification, on page 2, lines 5-7, contains almost identical language, but with the word “using” instead of the word “with”, which in the context of the rest of the clause changes the meaning of the clause.

Claims 2-19 inherit the rejection from their parent claim 1.

It is assumed below, for the purposes of consideration over the art, that “with” is a typographical error and “using” or something that maintains the meaning of “using” was intended.

2. Claims 8, 32 and 44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 8, “the microfluidics device” has no antecedent basis.

Independent claim 31 calls for an illuminator; “for reading a plurality of detectors” is a non-limiting statement of intended use; the plurality of detectors is not claimed, nor is any structure that specifically adapts the illuminator to that purpose.

Claim 32, dependent from claim 31, limits not the claimed structure, but rather the non-limiting preamble intended use. Thus it is not clear whether and to what degree the claimed microcantilevers are, or are intended to be, definite claim limitations.

Similarly for claim 44; it is not clear whether and to what degree the microcantilever is being claims. Also in claim 44, "the microcantilever" has no antecedent basis.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 31, 33-43 and 45-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Webb et al (US 5,563,710).

The Webb et al reference shows an illuminator comprising a plurality of vertical cavity surface emitting lasers; as they are disclosed as being in an operable arrangement, it is necessary that there be a circuit and control for the lasers; such as, for example,

scan drive 16 shown in figure 1. It is at least obvious to place the illuminator within an appropriate housing; the use of housings for the purposes of protecting the components, blocking unwanted ambient light, etc. is so well known and such a standard practice in the art that official notice is sufficient.

Figures 3, 4, and 5 show the beams splitter of instant claim 33. Figure 6 shows the microlenses of instant claim 36.

The Webb reference does not teach the wavelength of the light from the VCSEL array as in claims 34 and 35. IT would have bee obvious to select VCSELs with wavelengths appropriate for the application for which it is being used.

Claims 37-42 claim various construction details. As understood, none of these details appear to be applicants' invention *per se*. Mounting the VCSELs on a thermally conductive substrate to help dissipate heat would have been obvious; metal, an electrically conductive material is a well-known choice for such thermally conductive material (claims 37). The use of a microflex circuit in such an arrangement would have been obvious (claim 39), using known techniques and materials to form the circuit and VCSEL array (claims 40-42) would have been obvious. Using adhesive to assembly the various elements would have been obvious (claim 38).

Those in the art could choose appropriate sizes (claim 43) and numbers (claims 50,51) for the VCSEL array.

The use of a micropositioner (claims 45, 46, 48) in order to allow for fine adjustment of the array with the sample and detector would have been obvious. Having

a window in the housing to allow the light to pass through so the device will work while protecting the devices in the housing (claim 47) would have been obvious.

The microlens array shown in figure 6 of the reference must have a holder of some sort; such an array will not float unsupported in the air (claim 49)./

6. Claims 1-3, 5-6, 31 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Prater (US 2002/0092340).

The Prater et al reference, on page 1, paragraph [0011] states, in the discussion of the background,

Prior work has used an array of vertical cavity surface emitting lasers (VCSELs) to send individual laser beams to each of the cantilevers in a sensor array.

See also page 12, paragraph [0140], which discloses as a part of a system:

In the preferred embodiment, the light from an array of laser diodes 1708 is directed onto an array of cantilevers 1710. Vertical Cavity Surface Emitting Lasers (VCSELs) for example are commercially available in arrays with a pitch of 250 μm .

See also figure 17c. This discloses the claimed subject matter of claims 1, 2, 3, 6, 31, and 32. In the next sentence on page 12, the reference discusses making the cantilevers with a spacing of 250 microns, so they are, as claimed herein, microcantilevers.

Note the housing around the light source 1 shown in figures 2-4 as in claim 31.

The reference, on page 1, in paragraph [0011], discusses the use of "an array of detectors"; the preceding paragraph, [0010], states that the detectors are "position-sensing detectors". Thus the reference discloses what is claimed in claim 5.

7. Claims 4, 7-30, 32 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prater et al (US 2002/0092340) in view of Webb et al (US 5,563,710).

See above for discussions of the Prater and Webb et al references, in particular to claims 10, 14, 15, 16, 20-27, 32 and 44.

As in claims 4, 14-26, and 28, the use of the basic system of Prater to measure microcantilevers in a microfluidics device would have been obvious; there is no reason for those in the art to suppose that the arrangement of Prater would cease to work were the cantilevers in a microfluidics device.

Figure 17c of Prater at least clearly suggests a linear array of VCSELs, as in claim 7. Spacing the VCSELs an appropriate distance from the device being read (claim 8, 170).

It would have been obvious to use a beam splitter, as shown by Webb in figures 3-5, in a system for reading microcantilevers because this is a known manner of arranging an array of VCSELs to direct light to an object to be investigated and then to a detector array (claims 9, 18).

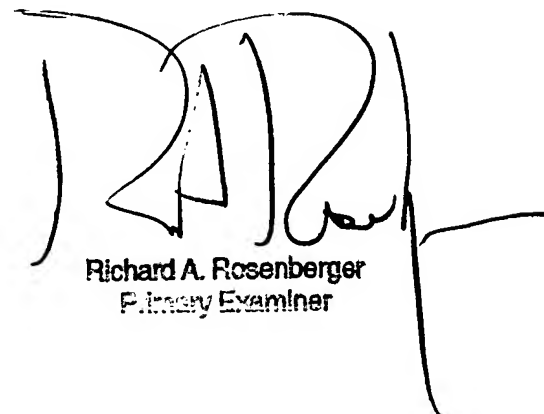
Using known cantilever devices for known tests (claim 11-13, 19, 29-30) would have been obvious. As understood, the instant disclosure does not set forth the details of these claims as applicants' invention *per se*.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A Rosenberger whose telephone number is (571) 272-2428. The examiner can normally be reached on Monday through Friday during the hours of 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. A. Rosenberger
23 September 2005



Richard A. Rosenberger
Primary Examiner